REMARKS

The rejection of claims 41 and 42 as being indefinite has been overcome by amending these claims to depend on claims 40 and 41, respectively. Applicant appreciates the Examiner's suggestions for amending the claims.

The independent claims have been amended to refer to fluidly connected or fluid communication to clarify that the pump hose is connected to provide a fluid passage to the blood treatment device.

The independent claims have been amended to remove functional language regarding the extension of the pump hose.

The rejection of claims 39 to 61 and 65 to 86 as being obvious over Chevallet (US 5,441,636) in view of Wamsiedler (US 6,176,903) is traversed.

Chevallet and Wamsiedler do not teach or suggest a blood treatment device having an upper end cap with a degassing device. The blood treatment device disclosed in Chevallet does not have a degassing device in its upper end cap. The degassing device disclosed by Wamsiedler circulates a dialyzing fluid, such as an aqueous solution, which is in contrast to the claimed invention which circulates blood.

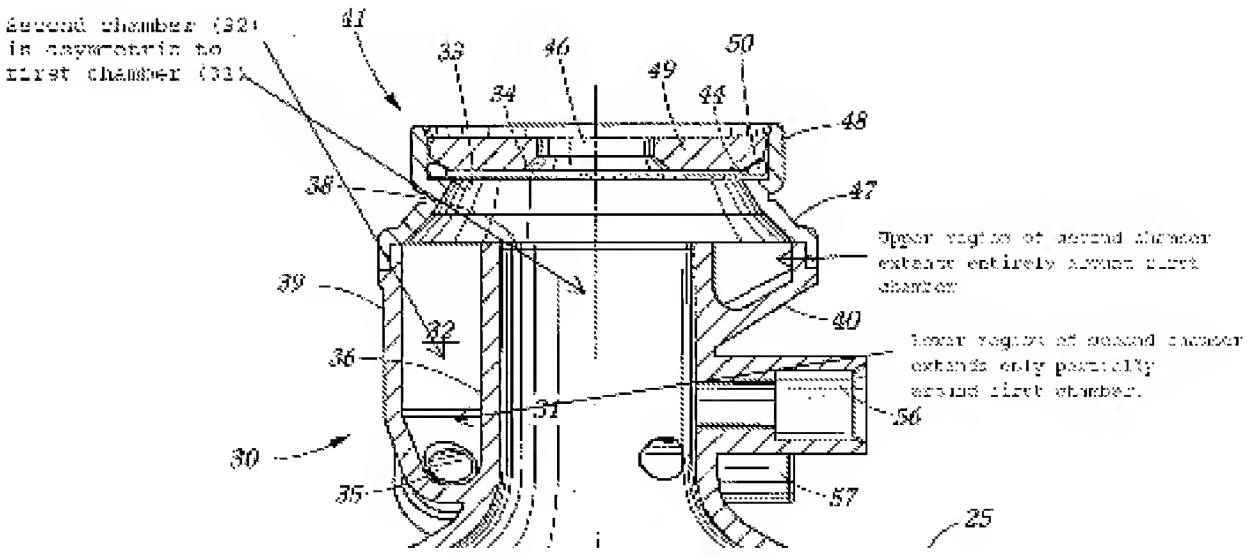
Circulating blood outside of the body of a patient raises coagulation issues, such as blood clotting. Coagulation issues do not arise when circulating a dialyzing fluid in the container shown in Wamsiedler. In view of the clotting concerns of extracorporeal blood, a person of ordinary skill in the art would not have deemed it obvious to use the liquid

degassing device shown in Wamsiedler to modify the blood treatment device shown in Chevallet.

Further independent claim 39, on which depend rejected claims 38 to 76, has been amended to require:

> wherein the downstream portion of the second chamber extends completely around an upper region of the downstream portion of the first chamber and only partially around a lower region of the downstream portion of the first chamber.

Similarly, independent claims 77 to 86 have been amended to require the degree to which the second chamber extends around the first chamber to reduce in the downstream direction. This feature is illustrated in Figure 5 of this application which is shown below with annotations.



The second chamber is asymmetrical to the first chamber because the degree to which the second chamber extends around the first chamber decreases from top to bottom.

The application points out the disadvantage of a container, such as shown in Wamsiedler, that has symmetrically arranged first and second chambers in which the degree to which the second chamber extends around a first chamber remains constant along the length of the chamber. The disadvantage is described in the application at page 15, lines 11-24, which are quoted below:

> It results from the shape of the second chamber 32 (cylindrical wall 39 connected to a slanting bottom wall 40), and from the connection of the outlet port 35 at the lowest point thereof, two characteristics that are of particular interest for a degassing device intended for blood: **in comparison to a second chamber that would completely and symmetrically surround the first chamber or even only the upstream cylindrical portion of the first chamber, with a bottom wall substantially perpendicular to the longitudinal axis of the degassing device, the design represented in the figures allows for a degassing device having a minimal internal volume, and in which there is no area of relative stagnation for a liquid circulated through the degassing device.** It was observed during the research work that led to the present invention, that with a second chamber completely surrounding the first chamber, with a bottom wall substantially perpendicular to the longitudinal axis of the degassing device, an area of relative stagnation appears in the second chamber opposite to the outlet port. [Emphasis Added]

In view of the above quotation, applicant requests withdrawal of the statement in the Office Action at page 4 that the application does not describe a problem solved by the claimed invention.

The Office Action does not provide support for its statement that making the second chamber in Wamsiedler asymmetrical to the first chamber would have been an obvious matter of design choice. Accordingly, the rejection for obviousness based on Chevallet and Wamsiedler should be withdrawn in view of the above arguments for patentability.

With respect to the rejected dependent claims, the obviousness rejection is not supported because:

- Dependent claims 40 and 42 requires a pressure sensor(s) having a first pressure measurement port "that is secured to the blood treatment device" The pressure sensor (55 of fig. 1) shown in Chevallet is not secured to a blood treatment device but is rather coupled to a tube for the passage of liquid.
- Dependent claims 48, 55, 56 require a pressure sensor "within the support structure" for the conduits (passages). The pressure sensor (55) shown in Chevallet is not in a support structure for conduits.
- Dependent claims 58 and 61 require a wall of the second chamber to be inclined, which is not shown in Wamsiedler. The application, at page 15, lines 11-24, describes the advantage of the inclined wall as being to reduce the risk of coagulation of blood in the second chamber. Wamsiedler does not address or suggest a chamber to reduce the coagulation of blood.

The rejection of claims 39, 43, 61 to 73, 75 to 78 and 82 to 86 as being obvious over Lipps (US 4,231,871) in view of Conti (EP 0292445) is traversed.

Lipps discloses an artificial kidney having a dialyzer with a blood outlet 124 connected to a bubble trap 158. Lipps, Fig. 10; col. 6, ln. 59 to col. 7, ln. 52 The artificial kidney is a "one-piece, integral, non-disassembleable unit." Lipps, col. 2, lns. 37-38. The integral unit disclosed in Lipps are formed by sealing together "jacket members." Lipps, col. 9, lns. 31-45. The opposing jacket members form fluid containers and seal filter fibers within the containers.

In Lipps, the bubble trap 158 is part of the integral unit. The bubble trap has an upper inlet 124 and a lower outlet 164. Lipps, col. 7, lns. 12 to 25. The top of the bubble trap 158 is fitted with a hydrophobic membrane 157. Other than having a hydrophobic membrane 157, the bubble trap disclosed in Lipps is dissimilar to the degassing chambers, e.g., bubble traps, recited in the rejected claims.

The rejected claims require a portion of a first chamber of a degassing device to extend into a second chamber of the device. Lipps discloses a degassing device 158 that does not share any portion of a first chamber. The Office Action points to reference numeral 124 in Figure 10 of Lipps as showing a first chamber that extends into the second chamber 158. Contrary to the Action, Figure 10 shows the two chambers to be separated by a passage (marked by the arched arrow shown in the figure) and does not show the first chamber extending into the second chamber.

The claims also require a reduction in the degree to which the second chamber extends around the first chamber of the degassing device. The second chamber does not surround the first chamber in the degassing device shown in Lipps. Accordingly, Lipps does not suggest a second chamber that reduces the degree to which it extends around a first chamber.

Conti discloses an oxygenator comprising a tubular casing 1 housing a bundle of hollow fibers 3 which are embedded in a disc of sealing material 6. The tubular casing structurally different and inconsistent with the integral one-piece unit shown in Lipps. A person of ordinary skill in the art would not have found it obvious to modify the artificial kidney shown in Lipps having sealed jacket members to incorporate the end caps shown in Conti. The sealed jacket members do not require an end cap to form a blood treatment device. It is not seen how a person of ordinary skill would modify the jacket members shown in Lipps to have the end caps shown in Conti.

The degassing device shown in Conti has a flat outer surface 11 of sealing material at the same level as the end of the tubular casing 1. A single chamber 8 is immediately above the disc of sealing material and below an end cap. Conti, col. 3, lns. 24-36. The single chamber 8 in Conti is not the two chambers required by all of the claims.

The independent claims have been amended to require the outlet of the second chamber to be above the inlet to the first chamber. Conti does not teach an inlet to a first chamber that is below an outlet of a second chamber. Conti teaches a short passage in chamber 8 between the outlet of the hollow fibers and the end cap. This short passage has

an inlet at the ends of the hollow fibers which is at an elevation above the outlet 10 of chamber 8. There is no suggestion, motivation or teaching from the prior art to shorten the hollow fibers such that the inlet to chamber 8 is below the outlet. To do so would result in a large open chamber in which blood would tend to stagnate and clot, and be counterintuitive to a person of ordinary skill in the art.

Further, dependent claims 66 to 69 require the cross-sectional area of the second chamber to be selected such that the blood flow through the chamber satisfies prescribed requirements for flow rate. Lipps and Conit do not teach of suggest sizing a second chamber of a degassing chamber based on a desired flow parameter, and would not have rendered obvious the subject matter of these claims. The sizing of the second chamber is a structural element of the degassing device. The Office Action improperly dismisses the sizing requirement of claims 66 to 69 as a functional limitation is a mischaracterization of these claims which relate to the size of the chamber. Size relates to structure and not to intended use.

The Examiner's attention is directed to:

U.S. Patent Application Serial No.10/595,705 which is under prior art rejections based on Lindsay (US 4,433,971), Verkaart (US 5,707,431), Buckberg (US 5,011,469 and US 5,643,191), Strauss (US 5,837,905) Bringham (US 4,698,207),

U.S. Patent Application Serial No.: 1/379,725, which is not under a prior art rejection, and

U.S. Patent Application No.: 10/595,772, which has issued as US 8,048,209.

All claims are in good condition for allowance. If any small matter remains outstanding, the Examiner is requested to telephone applicants' attorney. Prompt reconsideration and allowance of this application is requested.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: /Jeffry H. Nelson/
Jeffry H. Nelson
Reg. No. 30,481

JHN:glf
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100